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Working Group II
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PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND
DEVELOPMENT ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND
TAKING INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS:

ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTE:
OPTIONS FOR AGENDA 21
(Annex I)

OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

INTRODUCTION

The text in this document represents the final text as adopted by Working Group II after the informal consultations on agenda item 4 (a) (ref. document A/CONF.151/PC/WG.II/L.19) during the Third Session of the Preparatory Committee for the United Nations Conference on Environment and Development.

Furthermore the Secretary-General of the Conference was also requested by the Preparatory Committee, according to resolution 3/23, to submit to it, at its fourth session, document A/CONF.151/PC/WG.II/L.19, as revised during the informal consultation at the third session.

ANNEX I

[ENVIRONMENTALLY SOUND MANAGEMENT OF HAZARDOUS WASTE:
OPTIONS FOR AGENDA 21

OPTIONS FOR AGENDA 21

OVERALL OBJECTIVE

1. Within the framework of integrated life cycle management prevent to the extent possible and minimize the generation of hazardous wastes, as well as treat the wastes in a way that they do not cause harm to the environment.

OVERALL TARGETS

- (a) Prevention or minimization of the generation of hazardous wastes, elimination or reduction of the transboundary movements of hazardous wastes to a minimum consistent with the environmentally sound and efficient management of those wastes, and self-sufficiency in waste disposal in the country of origin to the extent environmentally sound and efficient.
- (b) Ratification of the Basel Convention and the expeditious elaboration of related protocols, [especially] the Protocol on liability and compensation, mechanisms and guidelines to facilitate the implementation of the Convention.
- (c) Ratification and full implementation by the countries concerned of the Bamako Convention and the expeditious elaboration of a protocol on liability and compensation.
- (d) [Full respect of the aims of the Bamako Convention by all countries.]

PROPOSED PROGRAMME AREAS

2. The following major programmes are proposed as options:

- (a) Promote waste prevention and minimization through "cleaner production" methods avoiding the use of hazardous substances where substitutes are available, through resource recovery, recycling, reclamation, direct reuse or alternative uses of wastes.
- (b) Enhance knowledge and information on economics of prevention and management of hazardous wastes.
- (c) Increase knowledge about health and environmental impacts of hazardous wastes.
- (d) Promote and strengthen institutional capacities in prevention, minimization and management of hazardous wastes.

- (e) Promote and strengthen international cooperation in management of transboundary movements of hazardous wastes, including control and monitoring, consistent with international and regional legal instruments.

A. PROMOTE WASTE PREVENTION AND MINIMIZATION THROUGH "CLEANER PRODUCTION" METHODS AVOIDING THE USE OF HAZARDOUS SUBSTANCES WHERE SUBSTITUTES ARE AVAILABLE THROUGH RESOURCE RECOVERY, RECYCLING, RECLAMATION, DIRECT REUSE OR ALTERNATIVE USES OF WASTES

Basis for action

3. Human health and environmental quality are being continually degraded by the increasing amount of waste being produced. One of the first priorities in waste management therefore is minimization as part of a broader approach, including pollution prevention and cleaner production strategies, industrial processes and consumer patterns.

4. Among the most important factors in these strategies is the recovery of wastes into useful material. Technology application, modification and development of new low waste technologies is therefore currently a central focus of waste minimization.

Objectives

5. The objectives of this programme are to:

- (a) reduce to the extent feasible the generation of hazardous wastes; and
- (b) where practicable and environmentally sound utilize residues emanating from the production process optimizing use of raw materials.

6. To achieve the objectives, countries which can afford to adopt the requisite technologies without detriment to their development could establish policies including:

- (a) Integration of cleaner production approach and waste minimization in all planning, and adoption of specific targets by a target year.
- (b) To promote the use of regulatory and market mechanisms.
- (c) Establish an intermediate target for the stabilization of the quantity of hazardous waste generated.
- (d) Establish longer term targets for reducing the amount of hazardous waste produced per unit of manufacture.
- (e) [Establish targets for countries producing banned or severely restricted chemicals (which are potentially hazardous wastes) to phase out such products and intensify R & D for alternatives.]

- (f) To achieve, on a substance by substance basis, a qualitative improvement of waste streams, mainly through activities aimed to reduce hazardous substances in waste streams.

Activities

7. Promote information collection and dissemination

- (a) Governments, ^{1/} assisted by international organizations, could establish mechanisms for assessing the value of existing information systems.
- (b) Governments could establish nationwide and regional information collection and dissemination clearinghouses and networks which are easy to access and use for Government institutions and industry.
- (c) International organizations, especially through the UNEP Cleaner Production Programme and the ICPIIC system, could extend and strengthen existing systems for collection of cleaner production information.
- (d) Promote the use and dissemination by all United Nations agencies of information collected through the Cleaner Production network.
- (e) [Strengthen international cooperation in monitoring the transfer to other countries of industries generating toxic and hazardous wastes.]
- (f) Cooperate in monitoring the effects of the management of hazardous wastes.

8. Technology development and research

- (a) Governments, according to their possibilities and with the help of multilateral cooperation, academia and industry could significantly increase financial support for "cleaner technology R & D programmes", including the use of biotechnologies.
- (b) Industry, with assistance from National Governments and international organizations, could promote research into the phase-out of hazardous processes and the reduction of raw materials and energy consumption.
- (c) Industry could develop schemes to integrate the cleaner production approach into the design of products and their management practices.

^{1/} [Throughout this document "Governments" also refers to the European Community acting in the sphere of its competence.]

9. Development of management tools and practices

- (a) Governments could modify existing standards or specifications for purchases to encourage energy and raw materials savings and to avoid discrimination against recycled materials.
- (b) Governments, according to their possibilities and with the help of multilateral cooperation, could provide economic or regulatory incentives to stimulate industrial innovation towards cleaner production methods, to encourage industry to invest in recycling technologies so as to ensure equal standards of environmental management to apply to recyclable wastes as well as to other types of wastes, and to encourage waste minimization investments.
- (c) [Developed country Governments should provide a range of incentives to encourage industry to transfer technologies and know-how to developing countries on preferential and non-commercial terms. Industry could develop guidelines and codes of conducts leading to cleaner production through sectoral trade industry associations.]
- (d) Governments, according to their possibilities and with the help of multilateral cooperation, should encourage, as far as possible, industry to treat and dispose of wastes at source, where waste generation is unavoidable.
- (e) Governments according to their possibilities and with the help of multilateral cooperation, should encourage as far as possible combined treatment/disposal facilities for small and medium size industries.
- (f) Governments should promote identification and clean-up of sites of hazardous wastes; in collaboration with industry and international organizations technologies, expertise and financing should be available for this purpose, as far as possible with the application of the polluter pays principle.
- (g) Governments should encourage technology assessments e.g. through the use of technology assessment centres.
- (h) [Governments according to their possibilities and with the help of multilateral cooperation should encourage industry to dispose of any such banned or severely restricted chemicals that are still in stock [or in use]/[but not in use], as soon as possible, in an environmentally sound manner.]

10. Promotion of education, training and public awareness

- (a) Governments could increase support for industrial training programmes, incorporating waste prevention and minimization techniques and launching demonstration projects at the local level to develop "success stories" in cleaner production.

- (b) Industry could integrate cleaner production principles and case examples into training programmes and establish demonstration projects/networks by sector/country.
- (c) All sectors of society could develop cleaner production awareness campaigns and promote dialogue and partnership with industry and other actors.

11. Strengthening of institutional capacities including policies and planning

- (a) Governments in developing countries in cooperation with industry and with the cooperation of appropriate international organizations, should develop inventories of hazardous waste production, in order to identify their needs of technology transfer and implementation for sound management of wastes and its disposal.
- (b) Governments could include into national planning and legislation an integrated approach to environmental protection, driven by prevention and source reduction criteria, based on the polluter pays principle, [and adopt waste reduction targets].
- (c) Governments could work with industry on sector-by-sector waste minimization campaigns, including quantified targets for raw material and energy use, as well as the reduction of wastes and other emissions.
- (d) Strengthen national environmental impact assessment procedures to take into account the concept of "cradle to grave" approach for the management of hazardous wastes, to identify options for minimizing the generation of hazardous wastes, through safer handling, storage, disposal and destruction.
- (e) Governments in collaboration with industry and appropriate international organizations could develop procedures for the monitoring of the application of the "cradle to grave" approach, including environmental audits.
- (f) [Bilateral and multilateral development assistance agencies could substantially increase funding for cleaner technology transfer to developing countries and economies in transition, including small and medium size enterprises.]

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21, will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
- Scientific and technological means

- Human resources development
- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

B. ENHANCE KNOWLEDGE AND INFORMATION ON ECONOMICS OF PREVENTION AND MANAGEMENT OF HAZARDOUS WASTE

Basis for action

12. Due to the increasing amounts of hazardous wastes generated every year, there are increasing direct and indirect costs to the society and to the individual citizens in connection with its generation, handling and disposal. To improve knowledge of the economics, including impact on employment and environmental benefits of hazardous waste management, it is therefore crucial that necessary capital investment be made available in development programmes.

Objectives

13. Facilitate the establishment of cost effective policies and approaches to hazardous waste prevention and management taking into consideration the state of development of each country.

Activities

14. Develop and implement a programme aiming at increasing knowledge and information on the economics of waste prevention and management.

15. A relevant and competent international organization could take the lead, in cooperation with other organizations, in inter alia:

- (a) Developing guidelines for estimating the costs and benefits for various approaches to the adoption of cleaner production and waste minimization and environmentally sound management of wastes.
- (b) Undertaking a comprehensive survey of and disseminate information on, experiences at national level in adopting economic regulatory schemes and incentive mechanisms for waste management and for the use of clean technologies, which prevent wastes from being generated.

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C. INCREASE KNOWLEDGE ABOUT HEALTH AND ENVIRONMENTAL IMPACTS OF HAZARDOUS WASTES

Basis for action

16. Toxic substances have entered the environment endangering human health and threatening ecosystems, due to careless storage, handling and disposal of hazardous wastes. To address these problems, there is a need for increased knowledge on environmental contamination and pollution, the associated health risks from exposures of populations, especially women and children and ecosystems, to hazardous waste, the assessment of risks and the characteristics of wastes.

Objectives

17. The objectives are to:

- (a) facilitate the assessment of impacts and risks of hazardous wastes on human health and the environment by establishing appropriate procedures, methodologies, criteria and/or effluent guidelines and standards;
- (b) improve the knowledge regarding effects of hazardous wastes on health and the environment; and
- (c) make information available to governments and to the general public on the effects of hazardous waste on health and the environment.

Activities

18. Development of technologies for prevention, minimization and handling of hazardous wastes

- (a) International organizations could identify relevant and improved technologies for handling, storage, treatment and disposal of hazardous wastes.
- (b) International organizations could develop improved health-based criteria upon which regulations and standards can be established, taking into account national decision-making processes, and assist in the preparation of practical technical guidelines for prevention, minimization and safe handling and disposal of hazardous wastes.

19. Development of management tools and practices

- (a) Governments could establish and maintain inventories including computerized inventories of hazardous wastes and their treatment/disposal sites and assess the risk to the environment as well as identify measures which are needed to clean up the disposal sites.
- (b) Governments and international organizations could collaborate in developing easy to implement methods and guidelines for characterization and classification of hazardous wastes.

20. Information exchange and dissemination

Governments, international, including regional organizations, could facilitate and expand the dissemination of technical and scientific information dealing with the various health aspects of hazardous wastes, and to promote its application.

21. Promotion of education and training

- (a) Governments and international organizations could collaborate in developing and disseminating educational materials concerning waste and their effects on environment and health, for use in schools and by the general public;
- (b) Governments could establish or strengthen programmes for environmentally sound management of hazardous wastes in accordance with health and environmental standards and extend surveillance systems to identify adverse effects on populations and the environment of exposure to hazardous wastes;
- (c) International organizations could provide assistance to Member States for assessing the health and environmental risks, resulting from exposure to hazardous wastes and in identifying their priorities for controlling the various categories or classes of wastes;
- (d) Governments could promote centres of excellence for training in waste management, building on appropriate national institutions, and encouraging international cooperation including through institutional links between developed and developing countries.

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D. PROMOTE AND STRENGTHEN INSTITUTIONAL CAPACITIES IN HAZARDOUS WASTE MANAGEMENT

Basis for action

22. Many countries lack the national capacity to handle and manage hazardous waste. This is primarily due to inadequate infrastructure, deficiencies in regulatory frameworks, insufficient training and education programmes and lack of coordination between the different ministries and institutions involved in various aspects of waste management. To ensure environmentally sound management of hazardous wastes one of the main priorities is to provide awareness, education and training programme to cover all levels of the society. In addition there is a need to undertake research programmes to understand the nature of hazardous materials, to identify their potential environmental effects and to develop technologies to safely handle these materials. Finally there is a need to strengthen the capacities of institutions which are responsible for the management of hazardous materials.

Objectives

23. Adoption of appropriate coordinating, legislative and regulatory measures at the national level supporting the environmentally sound management of hazardous waste including for the implementation of international conventions.

24. Public awareness and information programmes on hazardous waste issues and basic education and training programmes provided for industry and government workers in all countries.

25. Comprehensive research programmes on hazardous materials to be established in countries.

26. Strengthened service industries for handling hazardous materials and strengthened international networking.

27. Endogenous capacities to be established in all developing countries to train and educate staff at all levels in hazardous waste handling, monitoring and environmentally sound management.

Activities

28. Strengthening of research

- (a) International organizations [and donors] could increase support for hazardous waste research management in developing countries.

- (b) Governments, in collaboration with international organizations, could conduct research on the health effects of hazardous wastes in developing countries conditions including the long-term effects on children and women.
- (c) Governments could conduct research aimed at the needs of small and medium-size industries.
- (d) Industry, governments and international organizations could expand technological research on hazardous wastes handling, storage, transport, treatment and disposal and hazardous wastes assessment and management.

29. Strengthening of institutional capacities and infrastructures

- (a) Multinational companies (MNC) and other large scale enterprises should introduce policies and commitment to adopt equivalent or not less stringent standards of operation with reference to waste generation and disposal, while governments are invited to make efforts to establish regulations, which require such standards.
- (b) Governments, international organizations and industry could as appropriate:
 - (i) Support national institutions for dealing with hazardous wastes from the regulatory monitoring and enforcement perspectives, including enabling them to implement international conventions.
 - (ii) Develop industry-based institutions for dealing with hazardous wastes and service industries for handling hazardous wastes.
 - (iii) Adopt technical guidelines for the environmentally sound management of hazardous wastes and support implementation of regional and international conventions.
 - (iv) Develop and expand international networking, between professionals working in the hazardous wastes area and maintain an information flow among countries.
 - (v) Assess the feasibility of establishing and operating national, sub-regional and regional hazardous waste treatment centres. Such centres could also be used for education and training as well as to facilitate and promote the transfer of technologies for the environmentally sound management of hazardous wastes.
 - (vi) Develop a programme for the establishment of national capacities to train and educate staff at various levels in hazardous waste management.

- (vii) Study the feasibility [in the context of the Basel Convention and of relevant regional conventions] of providing financial assistance on an interim basis, in case of emergency situation, in minimizing damage from accidents arising from transboundary movements of hazardous wastes or during the disposal of these wastes.
- (viii) Conduct environmental audits of existing industries to improve in plant hazardous wastes management regimes.

30. Promotion of education, training and public awareness

Governments, international organizations and industry could:

- (a) Increase public awareness and information on hazardous waste issues and promote the development and dissemination of public information on hazardous waste that is understandable to the general public.
- (b) Increase participation in hazardous waste management projects of the general public, including grass root levels.
- (c) Develop training and education programmes for men and women in industry and government aimed at specific real-life problems, for example, planning and implementing waste minimization programmes, conducting hazardous materials audits or establishing appropriate regulatory programmes.
- (d) Promote the transfer to developing countries of technologies on hazardous waste minimizing and handling through training for labour, industrial management, and government regulatory staff.

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- E. PROMOTE AND STRENGTHEN INTERNATIONAL COOPERATION IN MANAGEMENT OF TRANSBOUNDARY MOVEMENTS OF HAZARDOUS WASTES, INCLUDING CONTROL AND MONITORING, CONSISTENT WITH INTERNATIONAL AND REGIONAL LEGAL INSTRUMENTS

Basis for action

31. In order to promote and strengthen international cooperation in the management, including control and monitoring of transboundary movements of hazardous wastes there is a need for harmonization of procedures and criteria used in various international and legal instruments. In this connection there is also a need to develop or harmonize existing criteria for identification of hazardous wastes dangerous to the environment, and building monitoring capacities.

Objectives

32. The objectives are:

- (a) To facilitate and strengthen international cooperation in the environmentally sound management, including monitoring of transboundary movements of hazardous wastes by having internationally adopted criteria for identification and classification of hazardous wastes for the harmonization of relevant international legal instruments.
- (b) To [adopt a ban on]/[prohibit/not permit] the export of hazardous wastes to countries, that do not have the capacity to deal with those wastes in an environmentally sound way.

Activities

33. Strengthening and harmonization of criteria and regulations

Governments and international organizations could cooperate as appropriate to:

- (a) Incorporate the notification procedure called for in the Basel Convention and other relevant regional conventions as well as their annexes into national legislation.
- (b) Formulate [international and where appropriate] regional agreements regulating transboundary movements of hazardous wastes, such as the Bamako Convention.
- (c) [Help promote the complementarity of such regional agreements with international conventions and protocols.]
- (d) Strengthen national and regional capacities and capabilities to monitor and control transboundary movement of hazardous wastes.
- (e) Set up monitoring and surveillance systems including at the national and regional levels, for the transboundary movements of hazardous wastes.

- (f) Develop guidelines for the identification of hazardous wastes at the national level, taking into account internationally, including regionally agreed criteria and prepare a list of hazard profiles for the hazardous wastes listed in the national legislation.
- (g) Develop and use appropriate methods for testing characterizing and classifying the hazardous wastes and adopt or adapt safety standards and principles for managing hazardous wastes in an environmentally sound way.

34. Adoption of normative measures

Governments and international organizations could collaborate to:

- (a) Elaborate or adapt policies for the environmentally sound management of hazardous wastes [in conformity with]/[keeping in mind provisions of] existing international instruments.
- (b) To make recommendations to the appropriate fora or to set up or adapt norms, including the equitable implementation of the polluter pays principle, and regulatory measures to comply with the obligations and principles of the Basel Convention, the Bamako Convention or other future regional and international agreements including protocols for setting out appropriate rules and procedures in the field of liability and compensation for damage resulting from the transboundary movement and disposal of hazardous wastes and other wastes, [as well as mandatory insurance to cover this].
- (c) [To promote voluntary as well as mandatory prohibition of export of hazardous wastes to developing countries, and to countries that cannot treat and dispose of the wastes to the same stringent requirements as in the country of origin].
- (d) [To urge governments to introduce legislation to severely punish persons engaged in illegal waste trade and illegal traffic].

35. Implementation of existing agreements

Governments are urged to ratify the Basel and Bamako Conventions and to pursue the expeditious elaboration of protocols on liability and compensation and of mechanisms and guidelines to facilitate the implementation of the conventions.

36. Promotion of information and public awareness

[To promote and assist intergovernmental and non-governmental organizations in establishing and enhancing information networks on transboundary toxic and hazardous waste trade and illegal traffic.]

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.]

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
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ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED
ISSUES: OPTIONS FOR AGENDA 21
(Annex II)

OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

INTRODUCTION

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[

ANNEX II

ENVIRONMENTALLY SOUND MANAGEMENT OF SOLID WASTES AND SEWAGE-RELATED ISSUES: OPTIONS FOR AGENDA 21

INTRODUCTION

1. Environmentally sound waste management must go beyond simply disposing of, safely, the wastes that are generated and seek to address the root cause of the problem by attempting to change unsustainable patterns of production and consumption. This implies the application of the integrated life cycle management concept. Defined thus, the options for action under the programme on environmentally sound management of solid wastes and sewage present a unique opportunity to reconcile development with environmental protection.

2. Correspondingly, the framework of the options for action is founded on a hierarchy of four objectives:

- Minimizing wastes
- Maximizing waste reuse
- Promoting safe waste disposal
- Extending waste disposal service coverage.

Such a four-goaled programme constitutes a comprehensive and environmentally-responsive framework for managing wastes in the future.

3. It is recognized that some of these goals cannot be accomplished immediately in either industrialized or developing countries. Changing production and consumption patterns which must characterize improvements in waste-management in industrialized countries require public support and incentives to manufacturers and can take considerable time to put into effect. Current consumption levels in developing countries are low and substantial increases will be inevitable as these countries attain basic standards of economic welfare. The instilling of sound waste-management policies and approaches now could help ensure a sustainable development process for the future. In addition, some improvement in both the quality of service and environmental protection achieved by present day waste production and disposal practices is required for most developing countries. For the urban poor populations who already reduce and make alternative use of much of their wastes the priority is often to have access to safe waste-disposal systems.

SECTOR-WIDE OBJECTIVES FOR WASTES

4. Following are the overall sector-wide objectives:

- a. Minimize the generation of waste; where generation of waste cannot be avoided, ensure that all wastes are safely recycled, treated or disposed of.

- b. Ensure that the living and working environment of all people is isolated from all forms of waste.
- c. Ensure that waste-related surface and groundwater and soil pollution is eliminated.

PROPOSED PROGRAMME AREAS

5. The following four major waste-related programme areas are proposed as options for consideration by the Preparatory Committee:

- Minimizing wastes
- Maximizing waste reuse
- Promoting safe waste disposal
- Extending waste disposal service coverage.

6. The above programmes are not in any order of priority, as priorities will vary from one country to the next. In fact, for many developing countries the programme to improve and extend waste-disposal service coverage will remain the first priority for many years to come. The four programme areas together will help in the achievement of sector-wide goals for wastes in a comprehensive manner. Within each programme area, a number of actions will need to be undertaken and should seek to build upon current activities and programmes at the global, regional, national and local levels.

A. MINIMIZING WASTES

Basis for action

7. Unsustainable patterns of production and consumption are increasing the quantities and variety of environmentally persistent wastes at unprecedented rates. The trend could double the quantities of wastes produced by the end of the century and increase quantities by between four and fivefold by the year 2025. A preventive waste-management approach focused on changes in lifestyles and in production and consumption patterns offers the best chance for reversing current trends.

Objectives

8. [With the aim to stabilize or reduce the production of wastes destined for final disposal over an acceptable time-frame, countries with international organizations cooperation could establish national production rates per capita, in urban and rural areas based upon the volume of wastes produced in those areas respectively.]

9. Countries in cooperation with international organizations, could strengthen procedures for assessing waste quantity and composition changes and for making waste-minimization policies operational.

10. [Some targets of the programme could include:]

- a. By [2000] ensure sufficient national, regional and international capacity to access, process and monitor waste-trend information and implement waste-minimization policies.
- b. [By [2000] all industrialized countries should have in place programmes to stabilize per capita waste production of waste, destined for final disposal, at the level prevailing at those dates; developing countries should as well work towards the goal to stabilize their waste production rates, without jeopardizing their development prospects.]
- c. [By [2025] produce annual periodic reviews with full global coverage.]
- d. [By the year [2000] all countries, in particular industrialized countries should apply programmes in order to reduce the production of agro-chemical wastes.]

Activities

11. Monitoring is a key prerequisite for keeping track of changes in waste quantity and quality and their resultant impact on health and the environment. The following specific activities could be undertaken to support monitoring:

- a. Relevant United Nations bodies coordinate the development of methodologies for country-level waste monitoring and use and expand existing monitoring mechanisms such as UNEP's Global Environmental Monitoring System (GEMS); WHO's Drinking Water Supply and Sanitation Coverage Data and Global Epidemiological Statistics; and UNCHS (Habitat)'s Human Settlements Statistical Data Base (HSDB.stat) programme for developing a harmonized data collection system.
- b. Countries, with appropriate international cooperation, identify and strengthen local institutions for gathering the requisite data.
- c. The relevant United Nations bodies undertake to process the data and report systematically to the countries concerned and an appropriate United Nations forum.
- d. Countries use the data to assess how environmentally sound their waste policies are and act accordingly.

12. Instruments for waste-minimization will need to be identified and widely disseminated. These could include:

- a. Relevant international organizations could undertake an extensive review of the effectiveness of all waste-minimization instruments, and identify potential new instruments that could be used and techniques by which they could be made operational at the country level. Guidelines and codes of practice could be developed.

- b. Countries could make waste prevention and minimization the principal objective of their waste-management programmes.
- c. Countries could promote public education and a range of regulatory and non-regulatory incentives to encourage industry to change product design and reduce industrial process wastes through cleaner production technologies and good housekeeping practices and encourage industries and consumers to use types of packaging that can be reused, in particular refillable packaging.
- d. Countries in accordance with their capacities could implement demonstration and pilot programmes to optimize waste minimization instruments.
- e. Governments, ^{1/} especially in developing countries, with cooperation from international organizations, could establish programmes for adequate transport, storage conservation and management of agricultural products, food stuffs and other perishable goods in order to reduce loss of these products, which results in the production of solid waste.

13. Consciousness raising, education, information and research aimed at promoting waste minimization are crucial for obtaining citizen and industry support. Countries could consider the following options in the development of their programmes:

- a. Countries, in cooperation with educational establishments could include within school curricula principles and practices of preventing and minimizing wastes and the environmental impacts of waste.
- b. [Countries in cooperation with educational establishments should elaborate pedagogical and teaching materials which would support training programmes aimed to preventing and minimizing the production of wastes and its impact on the environment.]
- c. [Countries, together with NGOs, could sensitize the society to the need for waste minimization as an integral part of solid waste management.]
- d. Relevant international organizations could develop media packages for adaptation and use in local campaigns.
- e. Countries could increase funds for applied research on waste minimization and provide an enabling framework for industry to do likewise.

^{1/} [Throughout this document "Governments" also refers to the European Community acting in the sphere of its competence.]

- f. International organizations could intensify and further develop the activities of the networks relating to information exchange on clean technologies and waste-minimization.
 - g. Governments could promote centres of excellence for training in waste-management, building on appropriate national institutions and encouraging international cooperation, including through institutional links.
14. Capacity building will be crucial to allow countries, especially developing countries, to develop and implement waste-minimization at the local and national levels. Some of the activities that could be undertaken are:
- a. The relevant United Nations and other international bodies, in cooperation with countries and where appropriate NGOs, could provide increased technical and financial assistance to build up technical, managerial, planning, monitoring and administrative capacities to implement waste prevention and minimization as the priority objective of overall waste management programmes.
 - b. [Countries could facilitate transfer of waste-reduction technologies to industry, and establish concrete national targets for effluents and solid wastes and for raw material use and energy consumption.]

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

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- Human resources development
- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development.]

B. MAXIMIZING WASTE REUSE

Basis for action

15. The exhaustion of traditional disposal sites, stricter environmental controls governing waste-disposal, and increasing quantities of more persistent wastes have all contributed to a rapid increase in the cost of waste-disposal services. Costs could double or triple by the end of the decade. Current disposal practices pose a threat to the environment. As the economics of waste-disposal services change, waste recycling and resource recovery are becoming increasingly cost-effective. Future waste-management programmes should take maximum advantage of resource-efficient approaches to management.

Objectives

16. Countries, in cooperation with international organizations, could strengthen and increase their recycling systems.
17. The United Nations should develop an internal recycling programme for main waste streams including paper, to the extent possible, including the use of recycled papers.
18. Countries and international organizations could ensure the availability of information techniques and appropriate policy instruments to encourage and make operational waste recycling schemes.
19. [Some targets of the programme could include:]
 - a. [By [2000] [ensure]/[promote] sufficient [financial and technological capacities at the regional, national and local levels] national and local regional capacity to implement waste recycling policies and actions.]
 - b. By [2010] all industrialized countries and by [2010] all developing countries should have a national programme including to the extent possible [concrete] targets for efficient waste recycling.

Activities

20. Information and research is required to identify promising socially-acceptable and cost-effective forms of waste recycling relevant to each country. For example, supporting activities could include:
 - a. International and regional organizations could undertake an extensive review of options and techniques for recycling all forms of wastes. Policies for recycling could be made an integral component of national and local waste-management programmes.
 - b. Countries, with appropriate international cooperation, could assess the extent and practice of waste recycling operations currently undertaken and identify ways by which these could be intensified and supported.
 - c. Countries, with appropriate international cooperation, could increase funding for applied research pilot programmes to test out various options for recycling, including the use of small, cottage-based recycling industries; compost production; treated wastewater irrigation; and energy recovery from wastes.
 - d. International and regional organizations could produce guidelines and best practices for waste recycling.

- e. Relevant United Nations bodies, in cooperation with Governments and NGOs, could intensify efforts at collecting, analysing and disseminating to key target groups relevant information on waste issues. Special research grants could be made available on competitive basis for innovative research projects on recycling techniques.

21. Incentives for waste recycling are numerous. Countries could consider the following options to encourage industry, institutions, commercial establishments and individuals to recycle wastes instead of disposing of them:

- a. Offer incentives to local and municipal authorities that recycle the maximum proportion of their wastes.
- b. Provide technical assistance to informal waste recycling operations.
- c. Apply economic and regulatory instruments, including tax incentives to support the principle that generators of wastes pay for their disposal.
- d. Provide legal and economic conditions conducive to investments in waste recycling.
- e. Implement specific mechanisms such as deposit/refund systems as incentives for recycling.
- f. Promote the separate collection of recyclable parts of household wastes.
- g. Consider incentives to improve the marketability of technically recyclable waste.
- h. Encourage the use of recyclable materials, particularly in packaging, when feasible.
- i. Encourage the development of markets for recycled goods by establishing programmes.

22. The transfer of technologies could support waste recycling and reuse:

- a. The United Nations, intergovernmental and other relevant organizations, could include the transfer of recycling technologies, such as machinery for reusing plastics, within their technical cooperation and aid programmes.
- b. The United Nations, regional organizations, national governments and NGOs could develop and improve existing technologies, especially indigenous technologies, and facilitate their transfer under ongoing regional and interregional technical assistance programmes.
- c. [National Governments could facilitate technology transfer for waste recycling by exempting such technologies from import taxes and other restrictions.]

23. Training will be required to reorient present day waste-management practices to include waste recycling. The following is an indicative list of actions that might be incorporated:

- a. The United Nations, international and regional organizations could include waste recycling in-service programmes as integral components of their technical cooperation programmes on waste-management, urban management and infrastructure development.
- b. Existing training programmes on water supply and sanitation could be expanded to incorporate techniques and policies for waste recycling.
- c. The advantages and civic obligations associated with waste recycling could be included in school curricula and relevant general educational courses.
- d. NGOs, community-based organizations and public interest groups in collaboration with local municipal authorities could do much to mobilize community support for waste recycling through focused community-level campaigns.

24. Capacity building to support increased waste recycling could focus on the following areas:

- a. Ways by which national Governments can make operational national policies and incentives for waste-management.
- b. Methods of enabling local and municipal authorities to mobilize community support for waste recycling by involving and assisting the informal sector waste recycling operations and undertaking waste-management planning which incorporates resource recovery practices.
- c. [Financial and technical cooperation will be required for resource recovery infrastructure planning and implementation.]

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
- Scientific and technological means
- Human resources development
- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

C. PROMOTING SAFE WASTE-DISPOSAL

Basis for action

25. Even when wastes are minimized and recycling has been maximized, some wastes will still remain. Even after treatment, all discharges of wastes have some residual impact on the receiving environment. Consequently, there is scope for improving waste treatment and disposal practices such as, for example, avoiding the discharge of sludges at sea. In developing countries the problem is of a more fundamental nature: less than 10 per cent of urban wastes receive any form of treatment and only a small proportion of treatment is in compliance with any acceptable quality standard. Fecal matter treatment and disposal should be accorded due priority given its potential threat to human health.

Objectives

26. Countries, with appropriate international cooperation, could treat and dispose safely an increasing proportion of the generated wastes with time.

27. [Some targets of the programme could include]/[Policies could include]:

- a. By [1995] all countries could establish waste treatment and disposal quality criteria based on the nature and assimilative capacity of the receiving environment.
- b. By [2000] countries could establish sufficient capacity to undertake waste-related pollution impact monitoring and conduct regular surveillance [including epidemiological surveillance].
- c. By [1995] industrialized countries and by [2000] developing countries could ensure that at least 50 per cent of all sewage, wastewaters and solid wastes are treated or disposed of [in conformity with environmental quality criteria].
- d. By [2025] countries could dispose of all sewage, wastewaters and solid wastes [in conformity with internationally agreed and accepted environmental quality criteria].

Activities

28. Standard setting and monitoring are two key elements essential for gaining control over waste-related pollution. The following specific activities are indicative of the kind of supportive actions that could be taken:

- a. Relevant United Nations agencies and other relevant international organizations could cooperate with governments in assembling and analysing the scientific evidence and association of pollution impacts of wastes in the environment in order to formulate and disseminate recommended international scientific criteria and guidelines.

- b. Countries could establish national and, where relevant, local environmental quality standards based on international scientific criteria and guidelines.
- c. Relevant international organizations and institutions could include within their technical cooperation programmes and agreements the provision of monitoring equipment and requisite training for their use.

29. Institutional reforms and capacity building will be indispensable if countries are to be able to quantify and mitigate waste-related pollution. Some activities to achieve this objective could include:

- a. [Each and every State should provide an environmentally sound solution, for the wastes it produces within its own territory, without it being acceptable to be exported to third countries or disposing it in areas, which are not subject to State sovereignty.]
- b. Countries that do not have independent environmental control bodies could be encouraged to establish these at national and local levels. International organizations and donors could support needed manpower skill-upgrading and provision of equipment.
- c. Countries could empower pollution control agencies with the requisite legal mandate and financial capacities to carry out their duties effectively.
- d. International agencies, formal technical training establishments and local NGOs could provide both formal and in-service training focused on pollution control, waste treatment and disposal technologies, and operations and maintenance of waste-related infrastructure. Inter-country staff exchange programmes could also be established.
- e. Countries, municipalities and local authorities, in collaboration with United Nations agencies, international organizations and funding agencies could focus, [as a first priority], on the rehabilitation and maintenance of existing facilities and [concentrate] technical assistance on improved maintenance practices and techniques; followed by the planning and construction of waste treatment facilities.
- f. [Countries, municipalities and local authorities with appropriate international cooperation could establish programmes to ensure the source segregation and safe disposal of the hazardous components of municipal solid waste.]
- g. [Countries with appropriate international cooperation could develop human wastes management plans giving due attention to the development and application of appropriate technologies and corresponding financial resources for their implementation.]

30. Information and research on various aspects of waste-related pollution control will be crucial for achieving the objectives of this programme. Activities in this area could include:

- a. [An information clearing house to be established within a relevant United Nations agency with extensive networks at the regional, national and local levels to collect and disseminate information on all aspects of waste-management, including safe disposal. Through the clearing house, strengthen existing regional networks and create new ones in regions that do not have them.]
- b. Relevant United Nations agencies could prepare guidelines and technical reports on subjects such as the integration of human settlements land use planning with waste disposal; environmental quantity criteria and standards; waste treatment and safe disposal options; industrial waste treatment; and landfill operations.
- c. Research on critical subjects such as low-cost, low-maintenance wastewater treatment systems, safe sludge disposal options, industrial-waste treatment and low ecologically-safe waste-disposal technologies could be supported by the international donor community.

31. In appraising development projects in the fields of water supply and waste collection, the need for investments in waste-treatment facilities should be considered.

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D. EXTENDING WASTE-DISPOSAL SERVICE COVERAGE

Basis for action

32. By the end of the century over 2.0 billion people will be without access to basic sanitation and an estimated half of urban populations in developing countries will be without adequate solid waste-disposal services. As many as 5.2 million people, including 4 million children under 5 die each year from waste-related diseases. The health impacts are particularly severe for the urban poor. The health and environmental impacts of inadequate waste-management, however, go beyond the unserved settlements themselves and

result in water, land and air contamination and pollution over a wider area. Extending and improving waste collection and safe disposal services are crucial to gaining control over this form of pollution.

Objectives

33. The overall objective of this programme is to provide health-protecting, environmentally-safe waste collection and disposal services to all people. Specific supportive targets could be:

- a. By [2000] all countries should have necessary technical, financial and human-resource capacity to ensure the provision of waste services commensurate with needs.
- b. By [2025] all urban populations should be provided adequate waste services.
- c. By [2050] full urban waste-service coverage should be maintained and full rural coverage with sanitation achieved.

Activities

34. Other Agenda 21 programme actions would contribute to the provision of waste services. These include:

- a. The Drinking Water Supply and Sanitation; and the Water and Sustainable Urban Development Programme areas of the Agenda 21 proposals on Freshwater Resources (document: A/CONF.151/PC/42/Add.7).
- b. The Environmental Infrastructure; and Human Settlements Management Programme areas of the Agenda 21 proposals on Human Settlements (document: A/CONF.151/PC/56).
- c. "The Basic Health Needs Related to the Environment" programme area of the Agenda 21 proposals on environmental health aspects of development (document: A/CONF.151/PC/54).

35. Since most of these initiatives will require interventions within the human settlements context, an overall umbrella programme that coordinates and concentrates international efforts within the human settlements programme and leads to action at the national and local levels will prove essential.

The following activities are proposed under this programme area:

36. [Policy changes at the national and local levels could enhance the rate of waste-service coverage extension. These could include:

- a. The full recognition and use of the range of low-cost options for waste-management including where appropriate their institutionalization and incorporation within codes of practice and regulation.

- b. High priority given to the extension of waste-management services to all settlements irrespective of their legal status.
- c. Integration of the provision and maintenance of waste-management services with other basic services such as water supply and stormwater drainage.]

37. [Considerable financial and technical cooperation will be required to increase coverage. National Governments, in collaboration with the United Nations, relevant international organizations, and multilateral financial institutions could undertake many activities of which the following are a sample:

- a. Adjust priorities within waste-management programmes to give higher priority to meeting the waste-disposal service needs of the unserved, especially, the unserved urban poor.
- b. Establish financing mechanisms for waste-management service development in deprived areas including appropriate modes of revenue generation.
- c. Apply polluter pays principle by setting waste-management charges at rates that reflect the true economic costs of providing the service and ensure that those that generate the wastes pay the full cost of disposing of it in an environmentally-safe way.
- d. Participatory planning and implementation procedures that involve communities, especially women, could be institutionalized.
- e. Intercountry transfer of relevant technologies, especially technologies for high-density settlements, could be encouraged.]

38. Information and research activities could be enhanced. Countries, in cooperation with appropriate international organizations and NGOs could, for instance:

- a. Find solutions and equipment for managing wastes in areas of concentrated populations. In particular, there is a need for appropriate refuse storage and collection systems and cost-effective and hygienic human-waste disposal options.
- b. Prepare and disseminate guidelines, case studies, policy reviews and technical reports on appropriate solutions and modes of service delivery to unserved low-income areas.
- c. A Settlement Infrastructure and Environment Programme could be launched following the Conference to coordinate the activities of all United Nations agencies involved in this area and include a clearing-house for information dissemination on all waste-management issues.
- d. Launch campaigns to encourage active community participation in waste-management particularly household waste.

39. International organizations, national and local governments in collaboration with NGOs, could provide focused training on low-cost waste-disposal options and participatory techniques for their planning and delivery. Inter-country staff exchange programmes among developing countries could form part of such training.

40. Improvements in management techniques are likely to yield the greatest returns in terms of improving waste-management service efficiency. The United Nations, international organizations, and financial institutions could in collaboration with national and local governments develop and make operational management information systems (MIS) for municipal record-keeping and accounting and for efficiency and effectiveness assessment.

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Proposals for means of implementation will include the following heading:

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PREPARATIONS FOR THE UNITED NATIONS CONFERENCE
ON ENVIRONMENT AND DEVELOPMENT ON THE BASIS OF
GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING
INTO ACCOUNT OTHER RELEVANT GENERAL ASSEMBLY
RESOLUTIONS,

PROMOTE THE SAFE AND ENVIRONMENTALLY SOUND MANAGEMENT OF
RADIOACTIVE WASTES THROUGH INTERNATIONAL AGREEMENTS

(Annex III)

OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

INTRODUCTION

The text in this document represents the final text as adopted by Working Group II after the informal consultations on agenda item 4 (c) (ref. document A/CONF.151/PC/WG.II/L.19/Add.2) during the Third Session of the Preparatory Committee for the United Nations Conference on Environment and Development.

Furthermore the Secretary-General of the Conference was also requested by the Preparatory Committee, according to resolution 3/23, to submit to it, at its fourth session, document A/CONF.151/PC/WG.II/L.19/Add.2, as revised during the informal consultation at the third session.

ANNEX III

[PROGRAMME AREA

Promote the safe and environmentally sound management of radioactive wastes through international agreements.

Basis for action

In many parts of the world the amounts of radioactive wastes, including those from nuclear power units, medical centres, research institutes, industrial facilities, mining operations, etc., are growing, [particularly in industrialized countries], their safe and environmentally sound management, including disposal, is critical, given their characteristics.

Objective

To ensure that radioactive wastes are safely managed and disposed of, with a view to protect human health and the environment.

Activities

Further development of international regulations

1. [To promote policies and practical measures to prevent and minimize generation of radioactive wastes.]
2. [To promote research on transmutation of highly radioactive wastes and the development of environmentally sound technologies in this area.]
3. Governments should strengthen their efforts to implement the Code of Practice for International Transboundary Movement of Radioactive Waste, and, under the auspices of IAEA, keep the question of [the control of] such movements under active review, [including the desirability of concluding a legally binding instrument,] or [and work towards a target date for a legally binding convention] [including protocols on liability, compensation and compulsory insurance].
4. [Governments should invite the London Dumping Convention to replace the current voluntary moratorium on disposal of low-level radioactive wastes at sea by a legally binding ban on such practice] or [Governments should encourage the London Dumping Convention to expedite work to complete studies on replacing the current voluntary moratorium on disposal of low-level radioactive wastes at sea taking into account the precautionary approach, with a view to take a well informed decision on this issue.]
5. [Governments and international organizations should not allow the disposal of high, intermediate and low-level radioactive wastes into, under and next to the seabed.]
6. Governments should respect the aims of the Bamako Convention and other relevant regional conventions prohibiting the import of all hazardous wastes, including radioactive wastes.]



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PREPARATIONS FOR THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT
ON THE BASIS OF GENERAL ASSEMBLY RESOLUTION 44/228 AND TAKING INTO ACCOUNT
OTHER RELEVANT GENERAL ASSEMBLY RESOLUTIONS:

ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS

PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC
AND DANGEROUS PRODUCTS AND WASTES

(Annex IV)

OPTIONS FOR AGENDA 21

Report of the Secretary-General of the Conference

INTRODUCTION

The text in this document represents the final text as adopted by Working Group II after the informal consultations on agenda item 4 (d) and (e) (ref. document A/CONF.151/PC/WG.II/L.19/Add.3) during the Third Session of the Preparatory Committee for the United Nations Conference on Environment and Development.

Furthermore the Secretary-General of the Conference was also requested by the Preparatory Committee, according to resolution 3/23, to submit to it, at its fourth session, document A/CONF.151/PC/WG.II/L.19/Add.3, as revised during the informal consultation at the third session.

Annex IV

ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS

PREVENTION OF ILLEGAL INTERNATIONAL TRAFFIC IN TOXIC
AND DANGEROUS PRODUCTS AND WASTES

OPTIONS FOR AGENDA 21

I. INTRODUCTION

1. A substantial use of chemicals is essential to meet the social and economic goals of the world community and today's best practice demonstrates that they can be widely used, cost effectively, and with a high degree of safety. However, a great deal remains to be done to extend the environmentally sound management of toxic chemicals, to undo the mistakes of the past, and to harness the carefully chosen use of chemicals to the causes of sustainable development and an improved quality of life in every country and every community across the globe. One of the major problems to tackle is the lack of sufficient scientific information for the assessment of risks of a great number of chemicals. Another problem is the lack of resources to assess chemicals for which data are at hand.

2. Other problems are related to the fact that the introduction of chemicals and of chemically-related industries in developing countries, which as yet lack the infrastructure and trained human resources for chemical safety, is often carried out on a far from environmentally-sound basis.

3. Gross chemical contamination, with grave damage to human health and the environment, has continued in recent times in some of the world's most important industrial areas. Restoration will require major investments and development of new techniques. The importance of long-range transport of pollution, with effects which can extend even to the fundamental chemical and physical processes of the Earth's atmosphere and climate, is only recently becoming understood.

4. A considerable number of international bodies are involved in work on chemical safety. In many countries work-programmes for the promotion of chemical safety are in place. Such work has international implications as chemical risks do not respect national boundaries. However, a significant strengthening of both national and international efforts is needed in order to achieve an environmentally sound management of chemicals.

II. OPTIONS FOR AGENDA 21

OVERALL OBJECTIVES

5. Overall objectives are:

- (a) Beneficial use of chemicals for sustainable development and safe manufacturing with minimum risks to health and the environment.

- (b) [Prevention of the uncontrolled exports of banned and severely restricted chemicals to developing countries which have neither the know-how, nor the capacity to manage such chemicals.]
- (c) [Promotion of specific procedures to enable countries concerned to take well-informed decisions on the management of toxic chemicals.]
- (d) [Adoption of strategies precautionary and anticipatory in approach for environmentally sound management of chemicals in each country not later than the year 2000 with implementation as soon as possible thereafter.]

PROPOSED PROGRAMME AREAS

6. The following major programme areas are proposed as options:

- (a) Expanding and accelerating the international assessment of chemical risks
- (b) Harmonization of classification and labelling of chemicals
- (c) Information exchange on toxic chemicals and chemical risks
- (d) Establishment of risk reduction programmes
- (e) Strengthening of national capabilities and capacities for management of chemicals

7. Common for the five programme areas is that their successful implementation is highly dependent, on one hand, on intensive international work, still better coordination of current international activities, and on the other hand on the identification and application of technical, scientific, educational and financial means, in particular for developing countries. To a varying degree the programme areas involve hazard assessment, based on the intrinsic properties of chemicals, risk assessment, including assessment of exposure, risk acceptability and risk management.

8. The collaboration on chemical safety between UNEP/IRPTC, ILO and WHO in the IPCS should be the nucleus for international cooperation on environmentally sound management of toxic chemicals. All efforts should be made to strengthen this programme. Cooperation with other programmes, and particularly the OECD and EC Chemicals Programme, should be promoted.

9. Increased coordination of United Nations agencies and other international organizations involved in chemicals assessment and management should be further promoted. Within the framework of IPCS an intergovernmental meeting, convened by the Executive Director of UNEP, to be held in London in December 1991 should further explore this matter.

10. The broadest possible awareness of chemical risks is a prerequisite for achieving chemical safety. Therefore, the principle of community right to know should be recognized and the industry initiative on responsible care and product stewardship should be developed and promoted. Large industrial

enterprises including transnational corporations should apply adequate standards of operation in all countries in order not to damage human health and the environment.

A. EXPANDING AND ACCELERATING THE INTERNATIONAL ASSESSMENT OF CHEMICAL RISKS

Basis for Action

11. The assessment of risks to human health and environment that a chemical may cause is a prerequisite to planning for its safe and beneficial use. Out of the approximately 100,000 chemical substances in commerce and the thousands substances of natural origin which human beings come into contact, many substances appear as pollutants and contaminants in food, commercial products and the various environmental media. Fortunately the exposure to most chemicals is rather limited as most are used in very small amounts. Some 1,500 chemicals cover over 95 per cent of the total world production. But a serious problem is that even for a great number of high volume production chemicals, crucial data for risk assessment are often lacking.

12. Risk assessment is resource-intensive. It could be made cost-effective by strengthening international cooperation and better coordination, thereby making best use of available resources and avoiding unnecessary duplication of efforts.

Objective

13. Strengthening of international risk assessment. About 500 priority chemicals or groups of chemicals, including major pollutants and contaminants of global significance, could have been assessed by the year 2000 using current selection and assessment criteria.

Activities

14. Relevant international organizations with active participation of Governments ^{1/} and industry [should]:

- (a) Strengthen and expand programmes on chemical risk assessment within the United Nations system (IPCS: UNEP, ILO, WHO), based on agreed approach to data quality, assurance, application of assessment criteria, peer review and linkages to risk management activities.
- (b) Produce guidelines for acceptable exposure for a greater number of substances, based on peer review and scientific consensus distinguishing between health-based exposure limits and those relating to socio-economic factors.
- (c) Give high priority to hazard assessment of chemicals, i.e. of their intrinsic properties as the appropriate basis for risk assessment.

^{1/} [Throughout this document "Governments" also refers to the European Community acting in the sphere of its competence.]

- (d) Review strategies for assessment of exposure and environmental monitoring to allow for the best use of available resources, to ensure compatibility of data and to encourage coherent national and international strategies for exposure assessment.
- (e) Promote mechanisms to increase collaboration amongst government, industry, academia and relevant NGOs, involved in the various aspects of risk assessment of chemicals and related processes, in particular promoting and coordinating research activities to improve understanding of the mechanisms of action of toxic chemicals.
- (f) Improve methods for assessment of chemicals for work towards a common framework for risk assessment and improve procedures for using toxicological and epidemiological data to predict the effects of chemicals on human health and the environment, in order to enable decision makers to adopt adequate policies and measures to reduce hazards posed by chemicals.
- (g) Develop criteria for priority-setting of chemicals of global concern for assessment.
- (h) Promote research on and validation of methods to those using test animals, thus placing the use of animals for testing purposes.
- (i) Promote relevant epidemiological studies with a view to establishing a cause-effect relationship between exposure to chemicals and the occurrence of certain diseases.
- (j) Generate data necessary for assessment building on, inter alia, IPCS, (UNEP, WHO, ILO), OECD and EC programmes. Industry should participate actively.
- (k) Encourage the development of procedures for countries to exchange with other countries' assessment reports on chemicals for use in national chemical assessment programmes.
- (l) Strengthen research for substitution of toxic chemicals.

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
- Scientific and technological means
- Human resources development

- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

B. HARMONIZATION OF CLASSIFICATION AND LABELLING OF CHEMICALS

Basis for Action

15. Adequate labelling of chemicals, based on assessed risks to health and environment, is the simplest and most efficient way of indicating how to handle and use chemicals safely.
16. For the safe transport of dangerous goods, including chemicals, a comprehensive scheme elaborated within the United Nations system is in current use. This scheme takes mainly into account the acute hazards of chemicals.
17. Globally harmonized classification and labelling systems are not yet available to promote the safe use of chemicals at the workplace, in the home, etc. Classification of chemicals can be made for different purposes and is a particularly important tool in establishing labelling systems.
18. [IPCS, in consultation with other concerned bodies, should initiate the process of harmonizing existing classification systems.]

Objective

19. A globally harmonized classification and labelling system including easily understandable symbols [should] be available by the year [2000].

Activities

20. International bodies including, inter alia, IPCS (UNEP, ILO and WHO), FAO, and with the cooperation of IMO, OECD and EC [should] establish a coordinating group to:
 - (a) Make comparative studies of existing classification and labelling systems as a starting point for establishing general principles for a globally harmonized system.
 - (b) draft proposals for standardization of hazard communication terminology and symbols in order to enhance risk management of chemicals, facilitate international trade and make it easier to translate the information into the end user's language.
 - (c) elaborate a harmonized classification and labelling system.
21. Relevant international organizations and Governments [should urgently]:
 - Finalize and establish a harmonized classification and labelling system for use in all United Nations languages [including adequate pictograms]. Such a labelling system should not lead to the imposition of unjustified trade barriers.

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
- Scientific and technological means
- Human resources development
- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

C. INFORMATION EXCHANGE ON TOXIC CHEMICALS AND CHEMICAL RISKS

Basis for action

22. The London guidelines are addressed to Governments with a view to assisting them in the process of increasing chemical safety in all countries through the exchange of information on chemicals.

23. The export to developing countries of chemicals which have been banned in one or more countries or whose use has been severely restricted in some industrialized countries has been the subject of concern as some importing countries lack the ability to assure safe use, due to inadequate infrastructure for controlling the availability, storage, formulation and disposal of chemicals.

24. In order to address this issue, provisions for Prior Informed Consent (PIC) procedures were introduced in 1989 in the "London Guidelines for the exchange of information on chemicals in International Trade" (UNEP/IRPTC) and in the "International Code of Conduct on the Distribution and Use of Pesticides" (FAO). In addition a joint FAO/UNEP programme has been launched for the operation of the PIC procedures for chemicals including the selection of chemicals to be included in the PIC procedure and preparation of PIC decision guidance documents. The ILO chemicals convention calls for communication between exporting and importing countries when hazardous chemicals have been prohibited for reasons of safety and health at work. [Within the GATT framework, negotiations are being pursued with a view to create a binding instrument on products banned or severely restricted in the domestic market].

Objective

25. Intensified exchange of information on chemical safety between all involved parties.

26. Full implementation of the Prior Informed Consent procedure [including mandatory applications through legally binding instruments] contained in the amended London Guidelines and in the FAO International Code of Conduct by the year [2000].

Activities

27. Governments and industries of countries exporting chemicals as well as international organizations [should]:

- (a) Provide knowledge and information on restricted or banned chemicals to importing countries to enable them to judge and take decisions on whether to import and how to handle these chemicals and establish joint responsibilities in trade of chemicals between importing and exporting countries.
- (b) Establish technical cooperation with and provide information to other countries, especially those with shortages of technical expertise, including training in the interpretation of relevant technical data, e.g. data provided through the FAO/UNEP joint programme on PIC (Decision Guidance Documents) and those submitted by industry or by other sources.
- (c) [Invite UNEP and FAO to work expeditiously towards the conclusion of the necessary legally binding instrument]
- (d) Strengthen international institutions and networks such as the IRPTC, responsible for information exchange on toxic chemicals.
- (e) Improve database information systems on Toxic Chemicals, including emission inventory programmes, through provision of training as well as soft- and hardware and other facilities.
- (f) Cooperate in strengthening and expanding the network of designated national authorities and establish a technical exchange programme to produce a core of trained personnel within each participating country.

28. United Nations organizations should provide all information material on toxic chemicals in all United Nations languages.

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

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- Scientific and technological means
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- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

D. ESTABLISHMENT OF RISK REDUCTION PROGRAMMES

Basis for Action

29. There are often alternatives to hazardous chemicals currently in use. Thus risk reduction can sometimes be achieved by using other chemicals or even non-chemical methods. The classical example of risk reduction is the substitution of harmless or less harmful substances for harmful ones. Setting standards for chemicals in each environmental media, food, consumer goods, etc., is another example of risk reduction. In a wider context risk reduction involves international approaches to reduce the risks of selected chemicals taking into account the entire life cycle of the chemicals. Such approaches could encompass both regulatory and non-regulatory measures including, *inter alia*, the promotion of the use of cleaner products and technologies, product labelling, use limitations, and the phasing out or banning of chemicals.

30. In the agricultural area, integrated pest management including biological control is one way of risk reduction.

31. Other areas of risk reduction encompass the prevention of chemical accidents, prevention of poisoning by chemicals and the undertaking of toxicovigilance and coordination of clean-up and rehabilitation of areas damaged by toxic chemicals.

Objective

32. To eliminate unreasonable risks and reduce risks to the extent economically feasible, posed by chemicals employing a broad-based approach, involving a wide range of risk reduction options and by taking precautionary measures.

Activities

33. Governments [should]:

- (a) Adopt policies based on the pollution preventions and the lifecycle approach to chemical management, covering manufacturing trade, use and disposal.
- (b) [Adopt policies and legal frameworks and procedures to identify, regulate and minimize the use of hazardous chemicals, by substitution, severely restricting the use, and phasing out of the production and use, as a priority for those chemicals which are on the prohibition lists of international conventions, in particular asbestos materials and organohalogen compounds.]
- (c) Carry out national reviews of earlier accepted pesticides and reviews of the possible substitution of other pest-control methods, particularly for pesticides which are toxic-persistent and/or bio-accumulative.

- (d) Encourage national and regional work to harmonize evaluation of pesticides.
- (e) Increase efforts to identify national needs for standard setting and implementation in the context of the FAO/WHO Code Alimentarius in order to minimize the adverse effects of chemicals in food.
- (f) Develop national policies and adopt the necessary regulatory framework for prevention of accidents (land use, planning, permit systems, reporting requirements on accidents, etc.) and work with UNEP's international directory of regional response centres and APELL programme.
- (g) Cooperate in the development of chemical risk communication guidelines at the national level to promote information exchange with the public.
- (h) [Develop programmes including research, to replace toxic chemicals with alternative clean production substitutes, and especially such toxic chemicals for which there is reason to believe that their use may need to be restricted or banned, including the ones which are on the prohibition list of international conventions, in particular asbestos material and organohalogen compounds]
- (i) Collaborate to develop common criteria to determine which chemicals are suitable candidates for concerted risk reduction activities.
- (j) Undertake concerted activities to reduce risks of selected chemicals, taking into account the entire life cycle of the chemicals. These activities could encompass both regulatory and non-regulatory measures including: the promotion of the use of cleaner products and technologies, emission inventories; product labelling; use limitations, economic incentives; and the phasing out or banning of chemicals.
- (k) Reduce in the over-dependence on the use of agricultural chemicals through alternative farming practices, integrated pest management or other appropriate means.
- (l) Develop policies for manufacturers, importers and others using toxic/hazardous chemicals to disclose toxicity information declaring risks and emergency response arrangements.
- (m) [Require] manufacturers, importers and others using toxic/hazardous chemicals to develop emergency response procedures and preparation of on-site and off-site emergency response plans.
- (n) Encourage large industrial enterprises including transnational corporations and other enterprises to introduce policies and commitment to adopt equivalent or not less stringent standards of operation, as in the country of origin.

- (o) [Prohibit the exporting of chemical products, the sale of which is banned in the state of origin].
- (p) Identify, assess, reduce and minimize or eliminate as far as feasible by environmentally sound disposal, risks from storage of outdated chemicals.

34. Industries [could]:

[Develop an internationally agreed upon code of principles for the management of trade in chemicals.

35. International organizations [could]:

- (a) Formalize networks of emergency response centres.
- (b) Promote technology that would minimize the use of hazardous chemicals and processes in all countries.
- (c) Promote exchange of information on national and regional activities to reduce the risks of chemicals.
- (d) Coordinate concerned risk reduction activities.
- (e) [Promote and develop legal instruments and mechanisms to phase out the production and use of asbestos materials, formulating programmes to substitute them for safer alternatives].

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

Proposals for means of implementation will include the following heading:

- Financing and cost evaluation
- Scientific and technological means
- Human resources development
- Building capacity of developing countries for preventive and corrective action in the field of environmental protection and promotion of development]

E. STRENGTHENING OF NATIONAL CAPABILITIES AND CAPACITIES FOR MANAGEMENT OF CHEMICALS

Basis for Action

36. Many countries lack national systems to cope with chemical risks. In several countries with systems in place there is an urgent need to make the systems more efficient.

37. Basic elements for national sound management of chemicals are:
(i) adequate legislation; (ii) information gathering and dissemination;
(iii) capacity for risk assessment and interpretation; (iv) establishment of
risk management policy; (v) capacity for implementation and enforcement;
(vi) capacity for rehabilitation of contaminated sites and poisoned persons.

38. As management of chemicals takes place within a number of sectors,
related to various national ministries, experience suggests that an
interministerial coordinating mechanism is essential.

Objective

39. National systems for environmentally sound management of chemicals
including legislation and provisions for implementation and enforcement should
be in place in all countries to the extent possible by the year [2000].

Activities

40. International organizations [should]:

- (a) Prepare guidelines with advice and check lists for enacting,
legislation in the chemical safety field.
- (b) [Support countries, particularly developing countries, to develop
and further strengthen national legislation and its implementation.
- (c) [Build on past, present and future risk assessment works at
international level, to support countries, particularly developing
countries to develop and strengthen risk assessment capabilities at
national and regional levels to minimize and when appropriate
prevent risk in the manufacturing and the use of toxic and hazardous
chemicals.]
- (d) Promote full implementation of UNEP's APELL programme and in
particular the international directory of emergency response centres.
- (d) Enhance technical training for developing countries in relation to
risk management.
- (f) Cooperate with developing countries in the setting up of an
institutional mechanism at national level and the development of
appropriate tools for management of chemicals.
- (g) Arrange at all levels of production and use initiation courses aimed
at staff working on chemical safety issues.
- (h) Develop mechanisms to make maximum use in countries of
internationally available information.
- (i) Promote translation where feasible of internationally prepared
documents on chemical safety into local languages and support
various levels of regional activities related to technology
[transfer] and information exchange.

- (j) Invite UNEP to develop, agree to, and implement guiding principles for accident prevention, preparedness and response for Governments, industry and the public, building on the OECD and ECE work in this area.
- (k) Establish programmes which provide the public with information about chemical stockpiles, environmentally safer alternatives and emissions.
- (l) To cooperate with developing countries in strengthening their institutional and regulatory capacities in order to prevent illegal international traffic in toxic and dangerous products and wastes.

41. Governments [should] at national level:

- (a) [Establish an interministerial coordinating mechanism, presided over by a senior member of the Government, to provide liaison between all parties involved in chemical safety activities (e.g. agriculture, education, industry, labour, health, transportation, police, civil defence, economic affairs, research institutions, poison control centres).]
- (b) Direct information campaigns to the general public to increase the awareness of problems on chemical risks including programmes providing information about chemical stockpiles, environmentally safer alternatives and emission inventories which could also be a tool for risk reduction.
- (c) In conjunction with IRPTC, establish national registers and databases for chemicals.
- (d) Develop an institutional mechanism for the management of chemicals.
- (e) [Develop networks of emergency response centres, including poison control centres].
- (f) Develop national and local capabilities to respond to accidents by full implementation of the APELL and similar programmes and regularly tested and updated emergency plans consistent with the OECD guiding principles on accident prevention, preparedness and response, where appropriate.
- (g) Organize, in collaboration with industry and trade unions, training programmes in management of chemicals, including emergency response, targeted at all levels.
- (h) In cooperation with industry develop emergency response procedures, identifying necessary means and equipment in industries and plants to reduce the impacts of accidents.

- (i) [Adopt legislation to prevent illegal international traffic in toxic and dangerous products and wastes and to strengthen institutional capacities for this purpose.]/[Employ measures, primarily in the area of enforcement, to prevent the illegal international traffic in toxic and dangerous products and wastes and strengthen institutional capacities for this purpose.]

[The implementation by developing countries of specific programmes and actions envisaged under Agenda 21 will be subject to the provision of adequate new and additional financial resources and of technology on concessional, preferential and non-commercial terms.

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